

CHAPTER 7

CONCLUSIONS

7-1. Incentives

The FMECA is a valuable tool that can be utilized from early design to functional use of a system. It is most beneficial when initiated early in the design process by providing engineers a prioritized list of areas in the design that need attention. This early assessment will minimize costs associated with constructing a facility and maintaining it. To develop strategies after the facility is built not only costs more but will typically be compromised due to physical restraints.

a. Due to the continuous challenge to provide clean reliable power and precise temperature control to a mission critical facility, it is somewhat intimidating to attempt to assess which items should be more critical to mission success. The effects of redundancy, failure rates and severity on this assessment of each component/subsystem can be complex and time consuming when using a pure statistical approach. However, the alternative method explained in this manual should provide a simpler means to make this assessment or ranking possible, with or without failure data.

b. The method used in this manual should be used as a guide and tailored to a facility's specific need. It is important that the user makes modifications to the forms to meet those needs. This manual is meant to be used as a tool and must be flexible to accomplish a meaningful analysis at different facilities.

7-2. Results

a. The results from this type of analysis are for comparison of single component failures only. The information derived from this analysis will provide a baseline to conduct other analyses. For simultaneous multiple failure event analysis, other techniques, such as Fault Tree Analysis (FTA), should be used. The FTA is very extensive and is usually applied to areas of concern that are identified through the FMECA process or from prior experience.

b. In conclusion it is very important to know the strengths and weaknesses of this analysis. The FMECA is a living document and should be updated on a continual basis as more and more information is collected on the system. It should provide a valuable resource to support reliability, corrective maintenance actions, and safety.

c. The effects of redundancy should be taken into consideration when calculating criticality numbers or assigning occurrence rankings because redundancy reduces the failure rate, thus increasing the availability. After all, availability is the prime objective of the C4ISR facility.